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## CLAIMS

1. Wafer support apparatus for an ion implanter having an implantation chamber for receiving an ion beam, comprising
- 5 a wafer holder for holding a wafer in the implantation chamber during implantation,
- an arm for supporting the wafer holder in the implantation chamber and having a portion adjacent
- 10 the wafer holder which is at least intermittently exposed to the ion beam during implantation, and
- an arm shield mechanism providing a plurality of shielding surfaces which can be selectively disposed to receive the ion beam to protect said exposed
- 15 portion of the arm.
2. An apparatus according to claim 1, wherein the shielding surfaces are disposed on a sleeve arranged over the arm.
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3. An apparatus according to claim 2, wherein the sleeve is rotatable about a longitudinal axis of the arm.
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4. An apparatus according to any of claims 2 or 3, wherein the sleeve has three or more facets and a shielding surface is disposed on each facet.
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5. An apparatus according to any of claims 2, 3 or 4, wherein each shielding surface further comprises a ridge extending substantially from an end of the shielding surface closest to the wafer support and along the longitudinal axis of the arm when the shielding surface is disposed to receive the ion
- 35 beam.
6. An apparatus according to claim 5, wherein the

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ridge or ridges of a first shielding surface protrude by a sufficient amount to receive the ion beam and to protect at least one juxtaposed shielding surface.

5        7.    An apparatus according to claims 4, 5 or 6, wherein the shielding surface disposed to receive the ion beam is arranged so that the ion beam strikes the said shielding surface with a substantially perpendicular angle of incidence.

10       8.    An apparatus according to any preceding claim, wherein each shielding surface is thermally isolated from a juxtaposed shielding surface.

15       9.    An ion implanter for implanting ions into a wafer, comprising an apparatus according to any preceding claim.

20       10.   A method for protecting an arm of a wafer support apparatus for an ion implanter, the implanter having an implantation chamber for receiving an ion beam, the arm supporting a wafer holder in the implantation chamber and having a portion adjacent the wafer holder which is at least intermittently  
25       exposed to the ion beam during wafer implantation, the method comprising;

30       disposing a first shielding surface of a shield mechanism to receive the said ion beam to protect the said exposed portion of the arm for a pre-determined number of processes, and

35       disposing a second shielding surface to protect the said exposed portion of the arm after a pre-determined number of wafer processes or if the ion species in the ion beam is changed.

11.    A method according to claim 10 wherein the shielding surfaces are moved automatically between

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wafer processes to protect the said exposed portion of the arm.

- 5 12. A method according to any of claims 10 or 11, wherein the shielding surfaces are disposed on a sleeve arranged over the arm, and the sleeve is rotated relative to the arm's longitudinal axis to dispose a shielding surface to protect the said exposed portion of the arm.
- 10 13. A shield apparatus for protecting an arm of a wafer support mechanism from ions in an ion beam during a wafer ion implantation process, comprising a plurality of shield portions, each being
- 15 movable between a first and second position with respect to the arm, so that ions in the ion beam are prevented from hitting the arm by a shield portion in the first position, and substantially no ions in the ion beam hit a shield portion in the second position.

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